IN THE UNITED STATES PATENT AND TRADEMARK OFFICE	
In re the application of: BOUET-GRIFFON, Myriam	Attorney Docket No.: 2901683-000026 BR 3565
	Confirmation No.: 6015
Application Serial No.: 10/561,010	Group Art Unit: 1793
Filed: April 18, 2007	Examiner: LEE, Rebecca Y.
For: Autobody Skin Piece Made of an Al-Si-Mg Sheet Metal Alloy and Fixed to a Steel Structure	

REPLY BRIEF

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I. REAL PARTY IN INTEREST

Alcan Rhenalu is the real party in interest by virtue of the assignment executed February 23, 2006, February 28, 2006, and April 7, 2006; and recorded at reel/frame number 019177/0463 on April 18, 2007.

II. STATUS OF CLAIMS

Claims 1, 3-5, and 7-20 are pending in this application. Claims 2 and 6 are cancelled. Claims 1, 3-5, and 7-20 stand rejected by the August 5, 2010 Final Office Action. Following the August 5, 2010 Final Rejection, a Notice of Appeal and Pre-Appeal Brief Request for Review was filed on October 4, 2010. A November 2, 2010 Notice of Panel decision maintained the rejection of claims 1, 3-5, and 7-20. Appellant submitted an Appeal Brief on November 24, 2010 and a Response to Defective Appeal Brief Notification on December 17, 2010.

III. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

(i) Whether claims 11 and 14-19 are patentable under 35 U.S.C. §103(a) over JP 2002-371333 ("Sato").

(ii) Whether claims 1, 3-5, 7-10, 12, 13, and 20 are patentable under 35 U.S.C. §103(a) over Sato in view of U.S. Patent No. 6,678,936 ("Izumi").

IV. ARGUMENT

A. The Examiner has not provided sufficient rationale to support a *prima facie* case of obviousness

The Examiner concluded that a *prima facie* case of obviousness exists because Sato teaches ranges that overlap the claimed ranges, yet the Examiner has not explained how Sato teaches or suggests the remaining features of the claims. The claims are directed to, *inter alia*, an aluminum alloy that has been

1) treated by solution, quenching, and age-hardening for three weeks at room temperature; and

2A) has a yield strength $R_{0.2}$ of less than 170 MPa (measured at room temperature) and has a high temperature yield strength (*i.e.*, measured at high temperature), at the beginning of a paint baking heat treatment after a temperature rise, of at least 160 MPa; or

2B) has a yield strength $R_{0.2}$ of less than about 160 MPa.

The Examiner stated that "Sato et al. further teach the aluminum alloy sheet would have a yield strength greater than 220 MPa before and after the paint baking (table 3), which overlaps the claimed ranges,"[1] yet yield strength greater than 220 MPa before and after paint baking is not the claimed invention.

As explained in the Declaration of Dr. Guiglionda, what is relevant to the instant claims is the yield strength at the *beginning* of a paint baking heat treatment *after* a temperature rise[2] — and measured at this temperature — because a higher yield strength at that time reduces the likelihood that a kink will form on the aluminum panel, whereas a lower yield strength at that time increases the likelihood that a kink will form. This is required by claims 1 and 11, which recite "a high temperature yield strength, at the beginning of a paint baking heat treatment after a temperature rise, of at least 160 MPa." Nothing in Sato indicates that the data of Table 3 were obtained at the *beginning* of a heat treatment *after* a temperature rise. There is no such measurement at high temperature at all in Sato.

Sato discloses YS (yield strength) and UTS (tensile strength) in table 3, col. 5 and 6, respectively, before paint baking, at room temperature, and YS in col. 10, also measured at room

[1] Examiner's Answer, 4 (Jan. 28, 2011).

[2] *See* Declaration of Guiglionda, ¶ 18 (Feb. 19, 2010) (emphasis added).

temperature. In contrast, the claimed condition YS > 160 MPa for the present invention is for a measurement at high temperature.

Izumi was cited for allegedly teaching that aluminum alloys would be used as an auto body roof.[3] Appellant respectfully submits that the teachings of Izumi are insufficient to overcome the deficiencies of Sato discussed above.

Thus, Appellant respectfully submits that the Examiner has not provided articulated reasoning with rational underpinning sufficient to support a *prima facie* conclusion of obviousness.[4]

B. It is now apparent from the Examiner's Answer that Appellant's showing that the claimed range is critical and achieves unexpected results relative to the prior art range was not considered

All evidence, including evidence rebutting a *prima facie* case of obviousness, must be considered when properly presented.[5] Moreover, Appellants may rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range.[6] Only now, from the Examiner's statement in the Examiner's Answer that "[p]aragraphs 18-20 of the declaration do not provide any factual data to support appellant's assertion of unexpected result" is it now clear that this evidence has not been considered. Only now, from the Examiner's Answer, is it clear that the Examiner has refused to apply Dr. Guiglionda's statements against the disclosures of Sato and Izumi.[7]

As evidence of material difference and criticality of the claimed range, Appellant submitted the Declaration of Dr. Guiglionda, showing that alloys with compositions lying outside the ranges claimed for Si, Fe, Cu, Mn, Mg, Zn, Cr, Zr, and Ti do not possess the physical properties required by the instant claims.[8] In other words, the claimed range achieves unexpected results relative to the

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[3] *See* Examiner's Answer, 7 (Jan. 28, 2011).

[4] *See id.*

[5] *See, e.g.*, *In re Sullivan*, 498 F.3d 1345 (Fed. Cir. 2007).

[6] *See* M.P.E.P. § 2144.05(III).

[7] *See* Examiner's Answer, 8-9 (Jan. 28, 2011) ("In addition, please be noted that such declaration has been considered and previous rejections based on Evancho et al. have already been withdrawn. No declaration in response to the rejections based on Sato et al. has been submitted.").

[8] *See, e.g.*, Declaration of Guiglionda, ¶ 15 (Feb. 19, 2010).

prior art range.[9] This showing by Dr. Guiglionda is relevant to the instant claims regardless of the prior art reference cited against them (whether Evancho, as used previously, or Sato and Izumi).

For example, the compositions of comparative alloys 6111[10] and 6016[11] from the instant specification lie within the ranges of Sato,[12] but not within the ranges of the instant claims (especially with regard to copper).[13] As with other alloys having compositions outside the ranges claimed, alloys 6111 and 6016 do not possess the physical properties required by the instant claims.[14]

In contrast, the composition of Alloy 6056 lies within the ranges of the instant claims, has yield strength after three weeks ($R_{0,2}$) of 169 MPa,[15] and improved mechanical resistance at 190°C both at the beginning (168 MPa) and at the end (223 MPa) of the electrophoresis treatment, with a 16% increase in yield strength.[16] For the Board's convenience, these data are summarized in the table below.

	Si	**Fe**	**Cu**	**Mn**	**Mg**	**Zn**	**Cr**	**Other**	**$R_{0.2}$ T4**	**$R_{0.2}$ electro-phoresis (at ~170°C)**
Instant Claims	0.7-1.3	< 0.5	0.8-1.1	0.4-1.0	0.6-1.2	< 0.7	< 0.25	Zr+Ti < 0.2	< 170	> 160
Sato	0.4-1.8	0.02-0.5	0.1-1.5	0.03-1.5	0.2-1.6	0.05-6.0	0.02-0.5	ok		???
Alloy 6111	0.63	0.11	0.69	0.17	0.78	—	0.07	—	179	159
Alloy 6016	1.00	< 0.3	0.13	0.12	0.30	—	0.03	—	97-126	100-128
Alloy 6056	0.85	0.07	1.0	0.45	0.75	0.16	0.02	—	169	168

[9] *See In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) ("The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims…. In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.").

[10] *See* Specification, 6 (Table 1: 6111).

[11] *See id.* (Table 1: Two alloys A and B of type 6016).

[12] *See* Sato at ¶ [0006] (Dec. 26, 2002).

[13] *See* Appeal Brief, 19-21 (Dec. 17, 2010).

[14] *See* Specification, 7 (Table 2).

[15] *See id.*

[16] *See id.* at 7-8 (Table 3).

As explained by the Declaration of Dr. Guiglionda, "[w]hat is relevant to the present claim set is that the addition of [copper] increases the yield strength measured at high temperature at the beginning of the paint baking heat treatment *i.e.*, during and just after the ramp-up. It has been surprisingly found that addition of higher concentrations of [copper] increase … the yield strength measured at high temperature …."[17] The Examiner stated that "[p]aragraphs 18-20 of the declaration [of Dr. Guiglionda] do not provide any factual data to support appellant's assertion of unexpected results,"[18] and implied that a new declaration directed to Sato was required to support an assertion of unexpected results.[19] However, the graphs and explanations provided at paragraphs 18 to 20 of the Declaration of Dr. Guiglionda provide that very data by comparing the standard precipitation kinetics with incubation time versus the improved precipitation kinetics with high copper content.[20] Further data supporting unexpected results are provided by the instant Specification itself, discussed above, in the comparison of alloys 6111, 6016, and 6056.

Izumi was cited for allegedly teaching that aluminum alloys would be used as an auto body roof.[21] Appellant respectfully submits that the teachings of Izumi do not add anything to remedy the deficiencies of Sato.

Thus, even if a *prima facie* case of obviousness could be established in view of Sato, Izumi, or the combination thereof, it is overcome by Appellant's showing that the claimed range achieves unexpected results relative to the prior art range.[22]

C. The Examiner has not considered Appellant's evidence that the process steps result in a product materially different from that disclosed in the prior art

The Examiner stated that "[e]ven though Sato et al. do not expressly teach the yield strength after solution treatment, quenching and aging, such properties would have been expected since Sato et al. disclose a substantially identical alloy sheet as claimed."[23] The Supreme Court recently

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[17] Declaration of Guiglionda, ¶¶ 18, 19 (Feb. 19, 2010).

[18] Examiner's Answer, 8 (Jan. 28, 2011).

[19] *See id.* at 9 ("No declaration in response to the rejections based on Sato et al. has been submitted.").

[20] *See* Declaration of Guiglionda, ¶¶ 18-20 (Feb. 19, 2010).

[21] *See* Examiner's Answer, 7 (Jan. 28, 2011).

[22] *See In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990).

[23] Examiner's Answer, 5 (Jan. 28, 2011).

observed in *KSR Int'l Co. v. Teleflex, Inc.* that the analysis supporting a rejection under 35 U.S.C. § 103 "should be made explicit,"[24] yet the Examiner has not articulated clearly how Sato teaches or suggests "an aluminum alloy that has been treated by solution, quenching, and age-hardening at room temperature."

Moreover, the Declaration of Dr. Guiglionda states that "[y]ield strength depends on both the chemical composition and the metallurgical structure, which is influenced by processing conditions such as quenching conditions. Accordingly, a person having ordinary skill in the art could not predict the physical characteristics of one alloy based on an alloy having similar constituents, but different processing steps."[25] Dr. Guiglionda pointed out that low yield strength of an alloy will increase over time (*i.e.*, during aging),[26] and that the instant "yield strength below 170 MPa" was derived from alloys assayed after three weeks of natural aging.[27] The yield strength values (耐力)[28] at column 5 of Sato's Table 3 vary between from 119 and 128 MPa, but Sato teaches that the alloys were aged for only seven days. Thus, Sato's low yield strengths will be greater after three weeks. Nothing in Sato, however, teaches or suggests that the yield strengths will still be below 170 MPa after three weeks of natural aging.

Izumi was cited for allegedly teaching that aluminum alloys would be used as an auto body roof.[29] Appellant respectfully submits that the teachings of Izumi do not add anything to remedy the deficiencies of Sato.

Thus, even if a *prima facie* case of obviousness could be established in view of Sato, Izumi, or the combination thereof, it is overcome by Appellant's showing that Sato fails to teach or suggest an aluminum alloy that has been treated by solution, quenching, and age-hardening at room temperature, and having the characteristics claimed.

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[24] *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007).

[25] Declaration of Guiglionda, ¶ 9 (Feb. 19, 2010).

[26] *See id.* at ¶ 10 (discussing alloy with yield strength of 121 MPa after one day, 183 MPa after one week, 187.5 MPa after two weeks, and 196.5 MPa after four weeks of aging).

[27] *See id.*

[28] *See, e.g.*, Fullcast Technology Dictionary, *available at* http://www.fctec.jp/professional/2007/07/proof_stressyield_strength.html.

[29] *See* Examiner's Answer, 7 (Jan. 28, 2011).

CONCLUSION

The requisite fee due upon filing of this Reply Brief is submitted herewith. Any additional fee is to be charged to Baker Donelson Bearman Caldwell & Berkowitz, PC, Deposit Account No. 50-4254.

Respectfully submitted,

BAKER, DONELSON, BEARMAN, CALDWELL & BERKOWITZ, P.C.

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